SECTION

1

Introduction to Medication Adherence and Persistence Special Interest Group

Speakers

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Professor, Centre for Quality and Patient Safety Research in the Institute for Health Transformation, School of Nursing and Midwifery, Deakin University, Burwood, Australia

Bijan Borah, PhD
Professor of Health Services Research, Mayo Clinic College of Medicine and Science; Endowed Scientific Director, Health Services and Outcomes Research Program at the Kern Center for the Science of Health Care Delivery, Mayo Clinic, Rochester, Minnesota, United States

Medication Adherence and Persistence SIG

- Mission: To stimulate research and evaluation on issues related to medication adherence, treatment persistence, and implications for health outcomes

214 MEMBERS

**LONGEST ACTIVE** ISPOR Special Interest Group with over 12 publications.

2 of the articles are in the **top 10 cited articles** in *Value in Health*.

Medication Adherence and Persistence SIG

- Some work products
  - Methods for Measuring Multiple Medication Adherence: A Systematic Review Report
  - Medication Compliance and Persistence: Terminology and Definitions
  - Methods for Integrating Medication Compliance and Persistence in Pharmacoeconomic Evaluations
  - For more studies and information see ISPOR Medication Adherence and Persistence Special Interest Group webpage https://www.ispor.org/member-groups/special-interest-groups/medication-adherence-and-persistence

Structure of Special Interest Group (SIG)
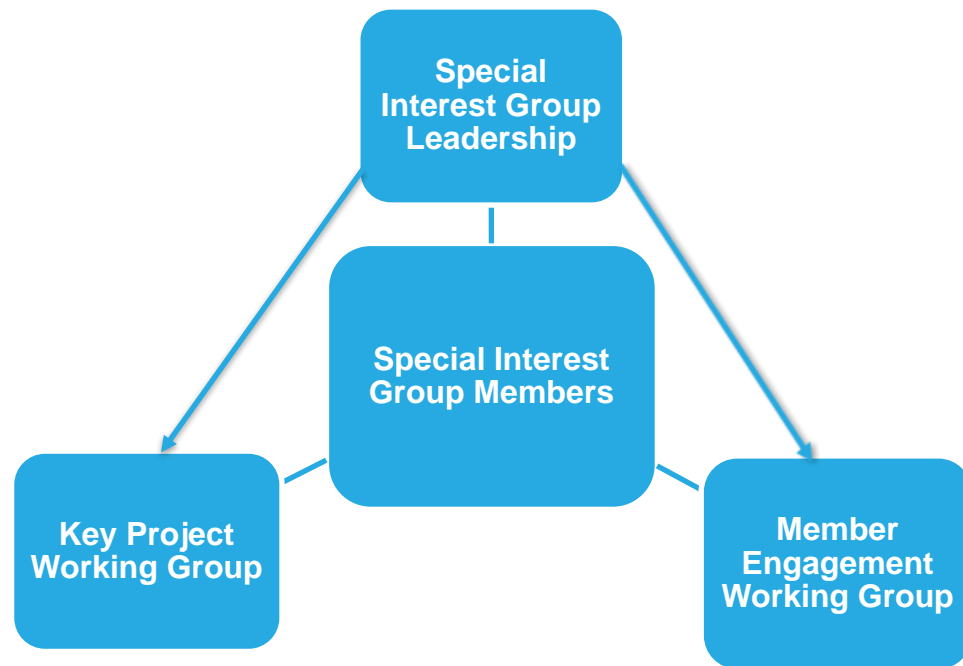
Special Interest Group Leadership

- Chair-elect
- Chair
- Past chair
- The tenure for each of positions is a 1-year term, resulting in a **3-year** commitment

Medication Adherence and Persistence Special Interest Group-Leadership

Special Interest Group Leadership		
Priti Pednekar, MS, BS, PhD Research Scientist, PRECISIONheor, United States	**Elizabeth Manias, RPh, RN, PhD,** Research Professor, Deakin University, Australia	**Andrew Peterson, PharmD, BS, PhD,** Professor of Clinical Pharmacy and Professor of Health Policy, University of the Sciences, United States

Criteria for the Value Assessment for Medication Adherence-Enhancing Interventions		
Tamas Agh, MD. MSc., Ph.D, Principal Researcher, Syreon Research Institute, Hungary	**Mickaël Hiligsmann, PhD,** Associate Professor, Maastricht University, The Netherlands	**Bijan Borah, PhD,** Professor and Endowed Scientific Director, Kern Center for the Science of Health Care Delivery, Mayo Clinic, United States

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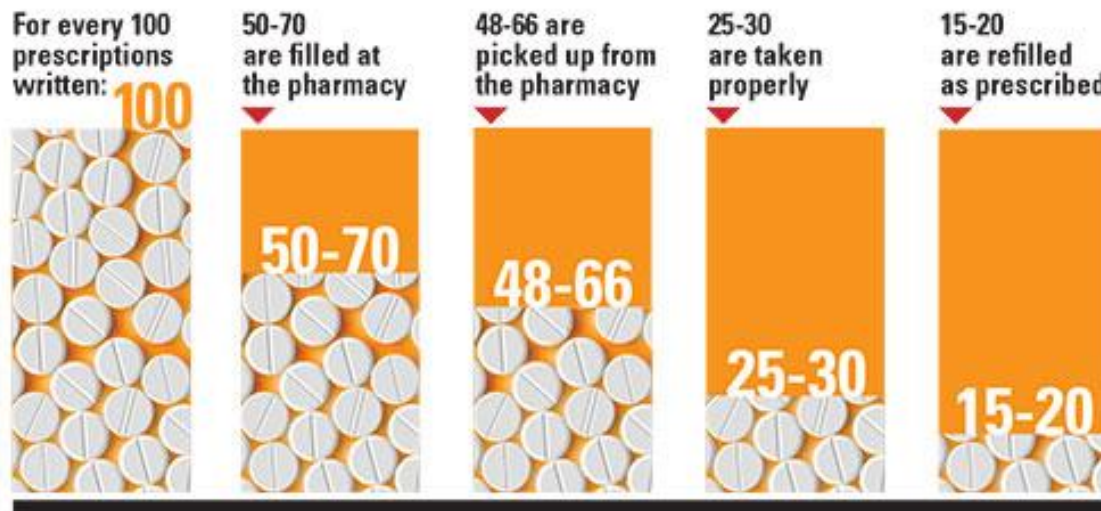- The Antitrust policy is available on the ISPOR website.

The Antitrust policy is available on the ISPOR website at ispor.org/antitrust.

Agenda

Item #	Time	Topic	Presenter
1	05 mins	Introduction	Dr. Priti Pednekar
2	10 mins	Rationale, objectives and structure of key research project	Dr. Priti Pednekar
3	10 mins	Current Key Research Project-Methodological approach	Dr. Elizabeth Manias
4	10 mins	Current Key Research-Interim results	Dr. Bijan Borah
5	10 mins	Next steps	Dr. Bijan Borah
6	15 mins	QnA	All

SECTION

2

Rationale, Objectives and Structure of Key Research Project

Non-adherence to Medications is Prevalent Across All Medical Conditions

For every 100 prescriptions written: 100

50-70 are filled at the pharmacy — 50-70

48-66 are picked up from the pharmacy — 48-66

25-30 are taken properly — 25-30

15-20 are refilled as prescribed — 15-20

Source: National Association of Chain Drug Stores, Pharmacies: improving health, reducing costs, July 2010. Based on IMS Health Data

Medication Non-adherence is a Costly Problem

125,000 premature deaths in the U.S. each year due to poor medication adherence

**25%** of hospitalizations each year in the U.S. are attributed to medication non-adherence

$300 billion avoidable costs to the U.S. health care system **annually**

$637 billion in annual cost to the pharma industry **globally**

Sources: Medication Adherence: The Elephant in the Room, January 2018. Available at https://www.uspharmacist.com/article/medication-adherence-the-elephant-in-the-room
Capgemini Consulting. (2012). Estimated annual pharmaceutical revenue loss due to medication non-adherence [White paper]. Forissier, T., & Firlik, K.

Medication Adherence Enhancing Interventions (MAEIs) Found to be Effective in Improving Medication Adherence

- Behavioral Interventions
- Biosensors
- Educational Interventions
- Patient Adherence Tools
- Tailored Interventions

Ingestible Sensor

Wearable Sensor

General Computing Device
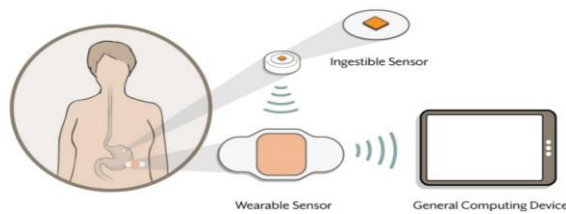
*The ingestible sensor and the compatible medical device*

How to Evaluate MAEIs?

- Several medication adherence enhancing interventions (MAEIs) have been developed in recent years; nevertheless
  - limited evidence on how to evaluate these interventions in real-world settings
  - Recent review indicated that "the vast majority of primary studies … were of low or very low quality according to the accepted methodology for evidence grading" (Anderson, 2020)

Source: Anderson LJ, et al. Am J Health-Syst Pharm. 2020; 77:138-147
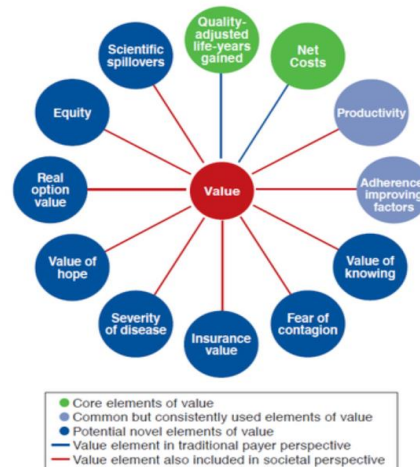
Currently Available Value Frameworks are Limited to Pharmaceutical Interventions

Conceptual Structure of the ICER Value Assessment Framework
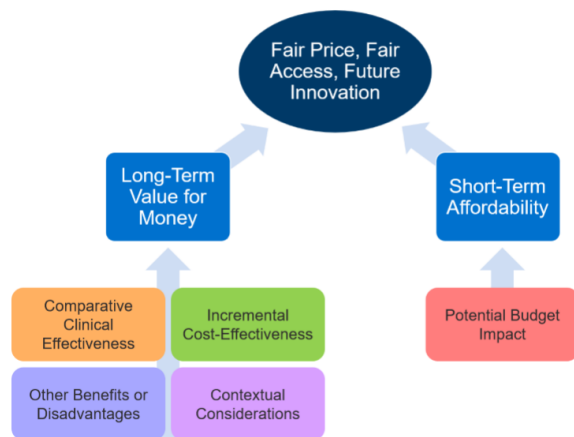
Source: 2020-2023 Value Assessment Framework. Institute for Clinical and Economic Review, 2020

ISPOR's Value Flower

Garisson et al. J Manag Care Spec Pharm, 2019 Jul;25(7):793-799

Not transferable to MAEIs
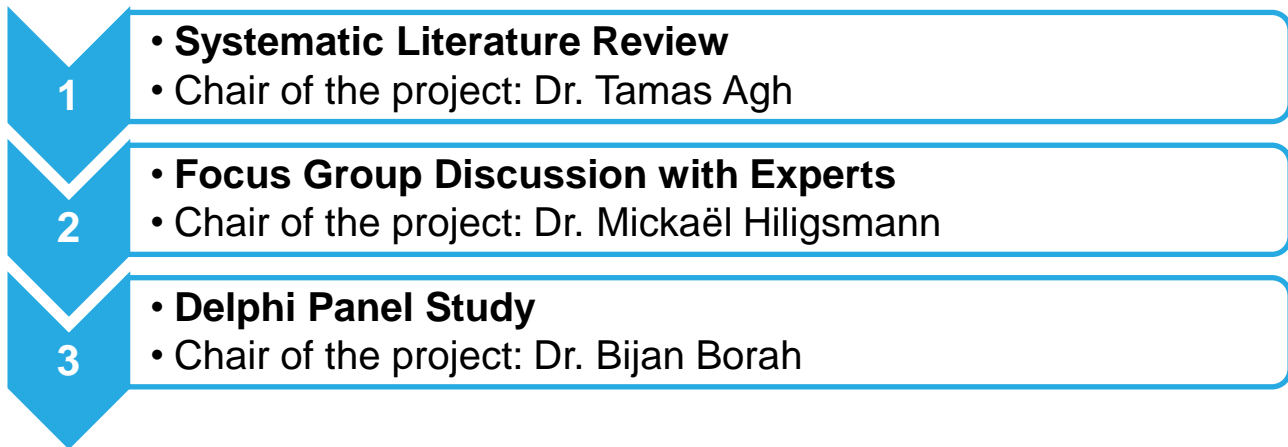
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Polling Question 1

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Polling Question 1

- **HOW IMPORTANT** do you think that there is a need to establish specific criteria to assess medication adherence enhancing interventions (MAEIs)?

A. Not at all important
B. Low important
C. Neutral
D. Important
E. Extremely important

Objective and Project Structure

- Aim: **To systematically identify relevant criteria for the value assessment of medication adherence enhancing interventions (MAEIs)**

- Key Research Project Phases:

1
- **Systematic Literature Review**
- Chair of the project: Dr. Tamas Agh

2
- **Focus Group Discussion with Experts**
- Chair of the project: Dr. Mickaël Hiligsmann

3
- **Delphi Panel Study**
- Chair of the project: Dr. Bijan Borah

Polling Question 2

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Polling Question 2

- Which criterion do you think is **MOST COMMONLY USED** in the literature to assess medication adherence enhancing interventions (MAEIs)?

A. Change in medication adherence rates, persistence or initiation rate

B. Cost-effectiveness of MAEI

C. Clinical outcomes such as change in cholesterol level, mortality rate, stroke rate, etc.

D. Patient satisfaction

E. Quality of life

SECTION

3

Systematic Literature Review-Methodology

Systematic Literature Review – Research Question

P (patient/population)	Patients receiving pharmacotherapy
I (intervention/indicator)	MAEIs
C (comparison)	NA
O (outcome of interest)	Outcomes / domains and criteria for the value assessment of MAEIs
S (study design)	A) Clinical trials: randomized/non-randomized, controlled/single-arm trials B) Prospective observational studies C) Economic evaluations (e.g., cost-effectiveness analyses) D) Value frameworks on pharmaceuticals and health care intervention programs

- "Which outcomes are considered for the assessment of MAEIs in clinical trials, prospective observational studies, and economic evaluations?"
- "Which domains or criteria of published value frameworks on pharmaceuticals and health care intervention programs can be relevant for the value assessment of MAEIs?"

Systematic literature review – Search Strategy

- Databases searched
  - MEDLINE (via OVID)
  - PsycINFO (via OVID)
  - Scopus
  - CINAHL (via EBSCO)
  - Academic Search Complete (via EBSCO)

- Search terms used
  - MeSH and non-MeSH terms
  - Boolean operators
  - Search terms related to
    - Medication adherence intervention AND clinical trial, observational study, economic evaluation
    - Value framework AND pharmaceutical, health care intervention

Systematic Literature Review – Article Selection Process

1) Initial electronic search
2) Addition of manual searched publications
3) Duplicates' removal – EndNote and Rayyan
4) First Pass Screening - Rayyan
   - Based on **title and abstract**
   - Include **double independent reviews** by multiple pairs of SIG members
5) Second Pass Criteria and # of articles
   - Based on **full texts**
   - Include **double independent reviews** by multiple pairs of SIG members
6) Resolution of discrepancies
   - Consensus between each pair of reviewers
   - Group discussions

Search Strategy- Eligibility Criteria

- **Inclusion criteria**
  - Clinical trials: randomized/non-randomized, controlled/single-arm trials
  - Prospective observational studies
  - Economic evaluations (e.g., cost-effectiveness analyses)
  - Value frameworks on pharmaceuticals and health care intervention programs

- **Exclusion criteria**
  - No abstract,
  - Non-English article,
  - Article not reporting original data (e.g., letter, editorial, comment, review),
  - Not evaluating a MAEIs (articles evaluating interventions for enhancing adherence to diet, lifestyle change, guidelines will be excluded), or not presenting the domains and/or criteria of a value framework for pharmaceuticals or intervention programs in health care,
  - Not reporting relevant data, and
  - Relevant former systematic literature reviews and meta-analyses (these articles will be collected separately, and the references of the papers will be reviewed)

Search Strategy- Data Extraction

- Several data elements will be extracted
  - Study design
  - Characteristics of participants of the study
  - Disease studied
  - Study period and duration of the study
  - Type of MAEIs
  - Criteria used to evaluate MAEIs

Our SLR is registered on PROSPERO HERE (registration number: CRD42021242934)

Polling Question 3

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Polling Question 3

- What do you think is the **MOST IMPORTANT** criterion of assessing medication adherence enhancing interventions (MAEIs)?

A. Change in medication adherence rates, persistence or initiation rate
B. Cost-effectiveness of MAEI
C. Clinical outcomes such as change in cholesterol level, mortality rate, stroke rate, etc.
D. Patient satisfaction
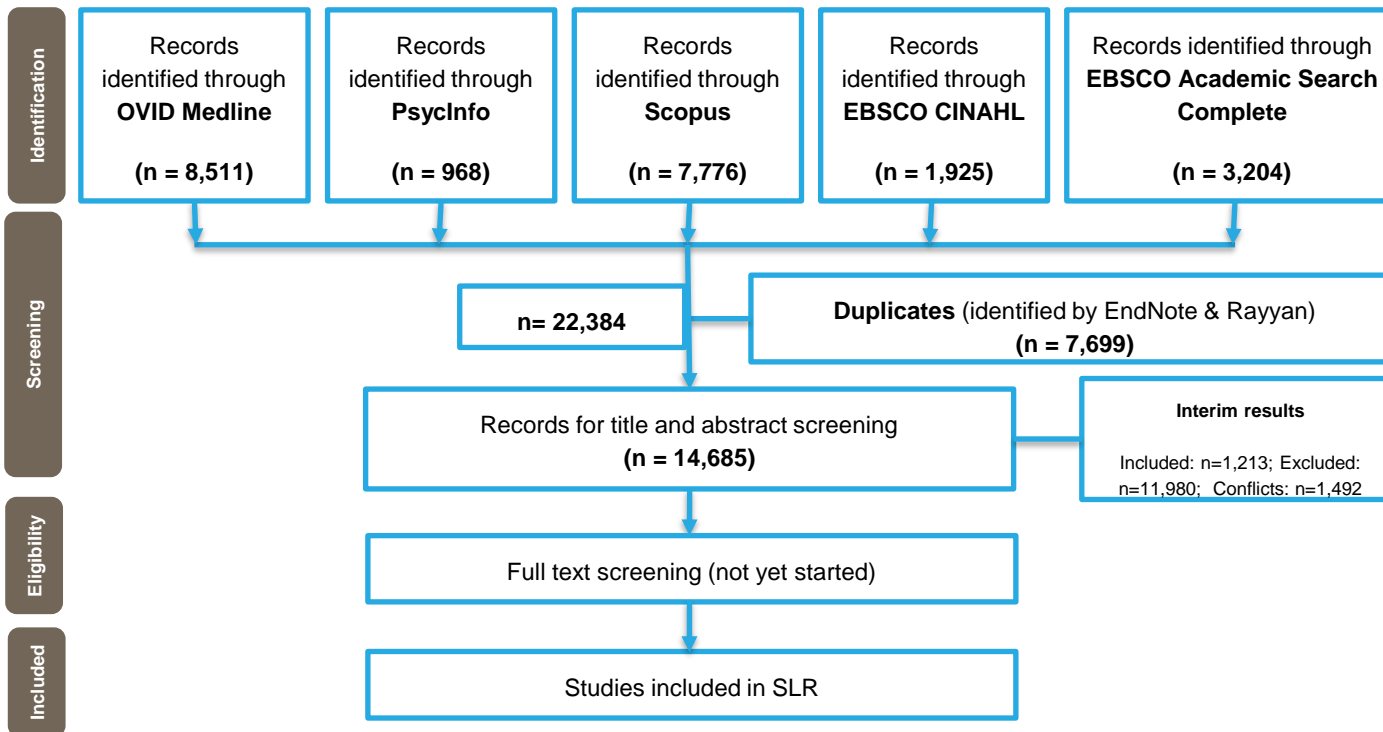E. Quality of life

Polling Question 4

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Polling Question 4

- What do you think is the **LEAST IMPORTANT** criterion of assessing medication adherence enhancing interventions (MAEIs)?

A. Change in medication adherence rates, persistence or initiation rate
B. Cost-effectiveness of MAEI
C. Clinical outcomes such as change in cholesterol level, mortality rate, stroke rate, etc.
D. Patient satisfaction
E. Quality of life

SECTION

4

Systematic Literature Review-Interim Results

Interim Results - Study Selection Flow Diagram

Identification

| Records identified through **OVID Medline** (n = 8,511) | Records identified through **PsycInfo** (n = 968) | Records identified through **Scopus** (n = 7,776) | Records identified through **EBSCO CINAHL** (n = 1,925) | Records identified through **EBSCO Academic Search Complete** (n = 3,204) |

Screening

n= 22,384

Duplicates (identified by EndNote & Rayyan) **(n = 7,699)**

Records for title and abstract screening **(n = 14,685)**

Interim results

Included: n=1,213; Excluded: n=11,980; Conflicts: n=1,492

Eligibility

Full text screening (not yet started)

Included

Studies included in SLR

32

Interim Results - Existing Evidence

Evidence gap

- **No published value framework for** medication adherence enhancing interventions **(MAEIs) !!!**

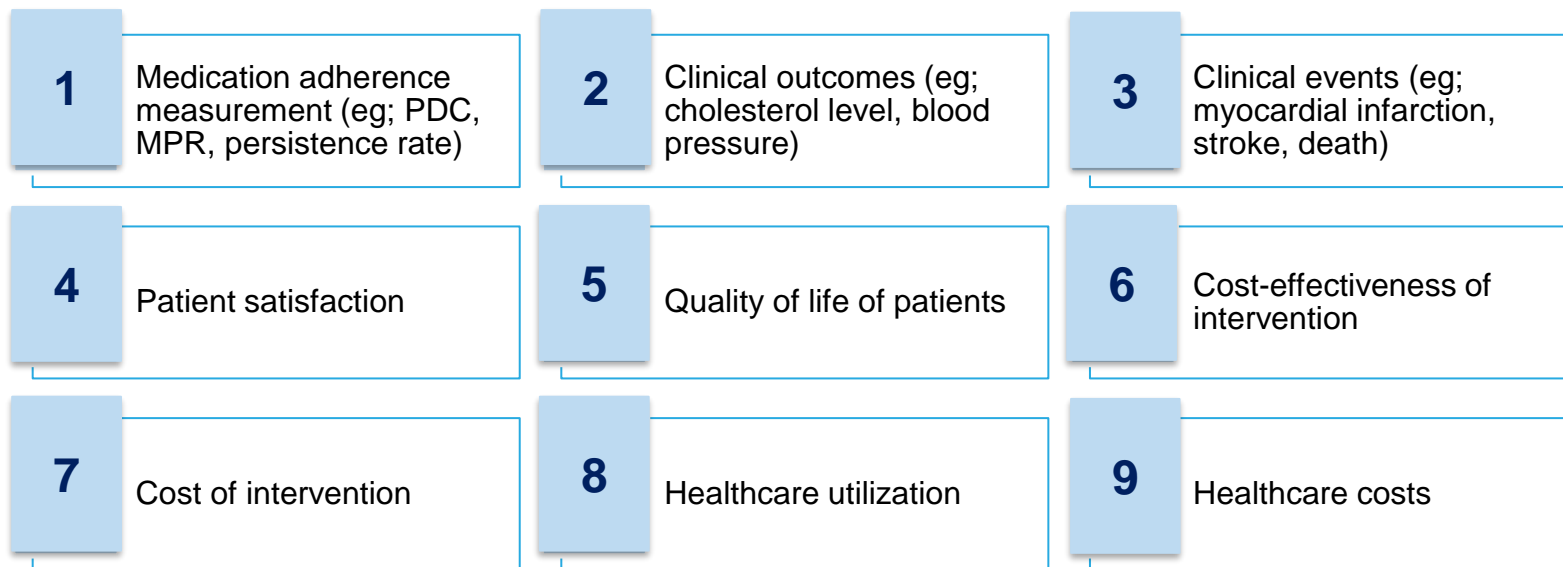| Prospective studies	Cost-effectiveness analyzes (CEAs)	Systematic literature reviews (SLRs)

• **Most of the included studies were prospective studies**
  ▪ Clinical trials of MAEIs
  ▪ Prospective cohort studies of MAEIs
	• **Limited number of CEAs of MAEIs were identified**	• **There are a large number of SLRs reporting data on MAEIs**
		  ▪ References of these SLRs will be reviewed for further potential studies

Interim Results – Criteria Identified

1 Medication adherence measurement (eg; PDC, MPR, persistence rate)	**2** Clinical outcomes (eg; cholesterol level, blood pressure)	**3** Clinical events (eg; myocardial infarction, stroke, death)
4 Patient satisfaction	**5** Quality of life of patients	**6** Cost-effectiveness of intervention
7 Cost of intervention	**8** Healthcare utilization	**9** Healthcare costs

Polling Question 5

Polling Question 5

- **HOW IMPORTANT** do you think that the assessment of medication adherence enhancing interventions (MAEIs) have an impact on health outcomes?

A. Not at all important
B. Low important
C. Neutral
D. Important
E. Extremely important

Polling Question 6

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Polling Question 6

- Which criterion do you now think is the **MOST IMPORTANT** criterion of assessing medication adherence enhancing interventions (MAEIs)?

A. Change in medication adherence rates, persistence or initiation rate
B. Cost-effectiveness of MAEI
C. Clinical outcomes such as change in cholesterol level, mortality rate, stroke rate, etc.
D. Patient satisfaction
E. Quality of life

SECTION

5

Next Steps

Next Steps in SLR

Identification

| Records identified through **OVID Medline** (n = 8,511) | Records identified through PsycInfo (n = 968) | Records identified through Scopus (n = 7,776) | Records identified through EBSCO CINAHL (n = 1,925) | Records identified through EBSCO Academic Search Complete (n = 3,204) |

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Interim results

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Eligibility

Full text screening

Included

Studies included in SLR

Project Next Phase: Online Focus Group

- Aim: To gain more insights into important criteria for value assessment of MAEIs.

- When? : Oct-Nov. 2021 (1 hour)

- How? : Online focus group via Zoom

- **We are searching for participants!**
  - Criteria: We will elicit the perspectives of all stakeholders engaged in improving medication adherence. Thus, online focus group participants will include:
    - Patient representatives
    - Working professionals from the following fields/industries: Payers, healthcare providers, industry, academia

SECTION

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QnA

Acknowledgement

- Thank you ALL!!
- Theresa Tesoro
- ISPOR staff
- ISPOR MAP SIG members
- Reviewers of 'title and abstract screening' step of SLR

▪ Charlotte Beaudart	▪ S. Hossein Hajimiri	▪ Nneka Onwudiwe
▪ Ivett Jakab	▪ David Hutchins	▪ Chintal H. Shah
▪ Kafi Agboola	▪ Manthan D. Janodia	▪ Manvi Sharma
▪ Shubham Atal	▪ Shweta Kamat	▪ Grace Singson
▪ Melania Brzozowska	▪ Kelly Lenahan	▪ Adina Turcu-Stiolica
▪ Christopher Daly	▪ Elkanah Linder	▪ Elizabeth Jisha Unni
▪ Maria Dimitrova	▪ Gediwon Milky	▪ Yingnan Zhao

- **For more studies and information see ISPOR Medication Adherence and Persistence Special Interest Group webpage https://www.ispor.org/member-groups/special-interest-groups/medication-adherence-and-persistence**

Sign up to join our Special Interest Group
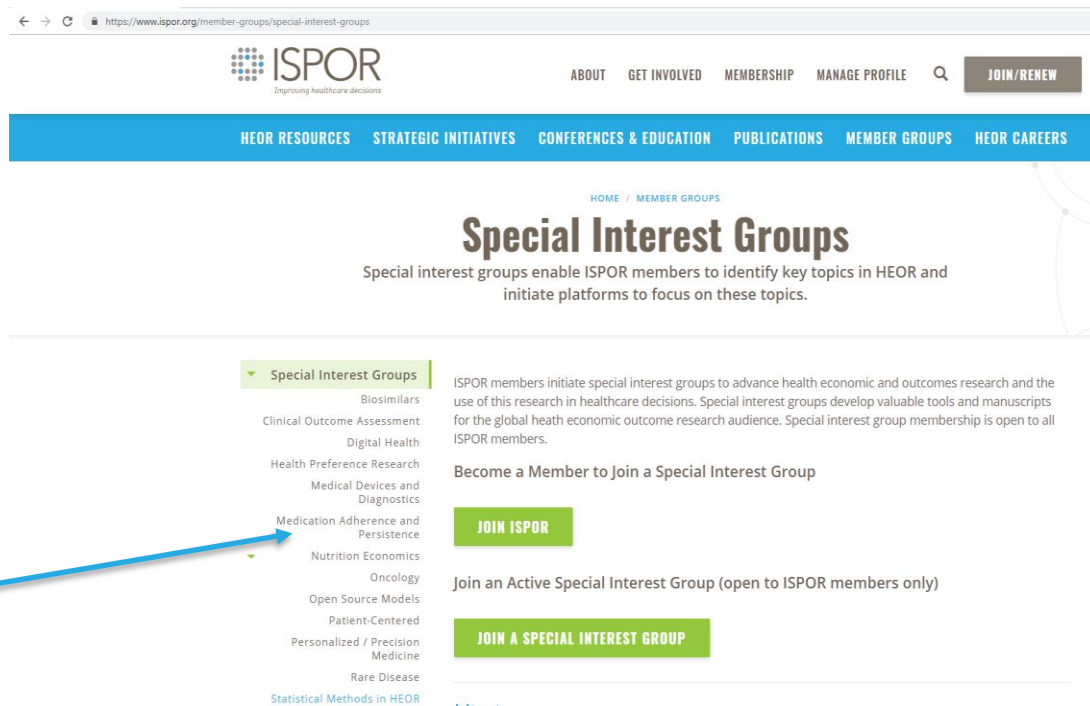
1. Visit ISPOR home page www.ispor.org
2. Select "Member Groups"
3. Select "Special Interest Groups"
4. Click button to "Join A Special Interest Group"

For more information about the Medication Adherence and Persistence Special Interest Group email MedAdherenceSiG@ispor.org

You must be an ISPOR member to join a Special Interest Group

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